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New Runway Surface Condition Reporting System

This Information Notice contains information that is for guidance and/or awareness.

Recipients are asked to ensure that this Information Notice is copied to all members of their staff who may have an interest in the information (including any 'in-house' or contracted maintenance organizations and relevant outside contractors).

Applicability: All Air Operators and Flight Crew

1. Introduction

- 1.1. On 5th November 2020 a new system of reporting runway surface conditions, known as the ICAO Global Reporting Format (GRF), comes into force. The ICAO Aerodrome SARPs are in Annex 14, with additional guidance in the PANS Aerodromes Doc 9981 and Circular 355.
- 1.2. The GRF allows cross functional (Aerodromes, ATM and Flight Operations) harmonisation and standardized reporting. November 2020 may seem a long way off, however, it is important that air operators amend their Operations Manual and actively inform their flight crews of the changes.

2. Global Reporting Format

- 2.1. Runway safety, particularly runway excursions, remain one of the top aviation safety concerns of the International Civil Aviation Organisation (ICAO). The Flight Safety Foundation echoes these concerns, and indicates that the third most common landing excursion risk factor is ineffective braking action, due to runway contamination such as snow, ice, slush or water. This trend is also confirmed by the main aircraft manufacturer.
- 2.2. Shortfalls in the accuracy and timeliness of runway assessment and reporting methods by aerodromes have contributed to the problem, despite many decades of research effort to harmonise various friction measurement devices and their linkage to aircraft performance. Whilst friction measurement equipment is useful for runway maintenance purposes, it is misleading to pilots due to the disconnect between the friction measurement and actual aircraft performance. To help mitigate the risk of excursion ICAO has developed a new harmonized methodology for assessing and reporting runway surface conditions. This

methodology, known as the **Global Reporting Format (GRF)**, will be globally applicable from 5 November 2020.

- 2.3. The agreed ICAO Aerodrome SARPs appeared in Annex 14 in 2016 with additional guidance found in the PANS Aerodromes Doc 9981 and Circular 355. The GRF is a major step forward in cross functional (Aerodromes, ATM and Flight operations) harmonisation that enables runway surface conditions to be reported in a standardized manner, such that flight crew can accurately determine aircraft take-off and landing performance. The GRF also incorporates the potential to communicate actual runway surface conditions to flight crew in real time and in terms that directly relate to aircraft performance data.
- 2.4. The GRF can be used in all climates and provides a means for aerodrome operators to correctly assess runway surface conditions including rapidly changing conditions such as those experienced during winter or in tropical climates.
- 2.5. The GRF comprises an assessment by airport operations staff using a **Runway Condition Assessment Matrix (RCAM)** and the consequent assignment of a **Runway Condition Code (RWYCC)** ranging from 6 to 0, see below. This code is complemented by a description of the surface contaminant based on *type*, *depth* and *% coverage* for each third of the runway. The code is based on the effect of the runway conditions on aircraft braking.
- 2.6. The outcome of the assessment and associated RWYCC are transmitted using a **Runway Condition Report (RCR)** forwarded to air traffic services and the aeronautical information services for dissemination to pilots. The pilots will use the RWYCC to determine their aircraft's performance by correlating the code with performance data provided by their aircraft's manufacturer. This will help pilots to correctly carry out their landing and take-off performance calculations for wet or contaminated runways.

3. Runway condition assessment matrix (RCAM)

Source: ICAO Document 9981 PANS -ADR			
Assessment criteria		Downgrade assessment criteria	
Runway condition code	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	Dry		
5	Frost <ul style="list-style-type: none"> Wet (The runway surface is covered by any visible dampness or water up to and including 3mm depth) Up to and including 3mm depth: <ul style="list-style-type: none"> Slush Dry snow Wet snow	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	Good
4	-15°C and lower outside air temperature: Compacted snow	Braking deceleration OR directional control is between Good and Medium	Good to Medium

3	<p>Wet ('slippery wet' runway)</p> <ul style="list-style-type: none"> • Dry snow or wet snow (any depth) on top of compacted snow <p>More than 3mm depth:</p> <ul style="list-style-type: none"> • Dry snow • Wet snow <p>Higher than -15°C outside air temperature¹:</p> <p>Compacted snow</p>	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced	Medium
2	<p>More than 3mm depth of water or slush:</p> <ul style="list-style-type: none"> • Standing water <p>Slush</p>	Braking deceleration OR directional control is between Medium and Poor	Medium to Poor
1	<ul style="list-style-type: none"> • Ice² 	Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced	Poor
0	<ul style="list-style-type: none"> • Wet ice² • Water on top of compacted snow² <p>Dry snow or wet snow on top of ice²</p>	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain	Less than Poor

- 3.1. The GRF also allows pilots to report their own observations of runway conditions, thereby confirming the RWYCC or providing an alert to any changing conditions. The other key attributes to the GRF are its relative simplicity of use and the fact that it is globally applicable.
- 3.2. Important changes have also been made to ICAO Annex 15 with the inclusion of a new Snowtam format also to be used from November 2020.
- 3.3. Whilst November 2020 may seem a long way off it is important that air operators and pilots become familiar with the material in both ICAO Annex 14 and PANS Aerodromes. The latter has 18 pages of excellent guidance material on all the elements of the new GRF under Part II – Aerodrome Operational Management.
- 3.4. Air operators should ensure that their Operations Manual include appropriate material and flight crew have received training in understanding and application of Runway Contamination Global Reporting Format system.

4. Further Reading

4.1. The GRF is outlined in amendments to the following documents:

- Annex 3 - Meteorological Service for International Air Navigation
- Annex 6 - Operation of Aircraft, Part I - International Commercial Air Transport - Aeroplanes and Part II - International General Aviation - Aeroplanes
- Annex 8 - Airworthiness of Aircraft
- Annex 14 - Aerodromes, Volume I - Aerodrome Design and Operations
- Annex 15 - Aeronautical Information Services
- Procedures for Air Navigation Services (PANS) - Aerodromes (PANS-Aerodromes, Doc 9981)
- Procedures for Air Navigation Services (PANS) - Aeronautical Information Management (PANS-AIM, Doc 10066)
- Procedures for Air Navigation Services (PANS) - Air Traffic Management (PANS-ATM, Doc 4444)
- Aeroplane Performance Manual (Doc 10064)

5. Queries

5.1. Any queries or requests for further guidance as a result of this communication should be addressed to HFO@scaa.sc

6. Cancellation

6.1. This Safety Notice will remain in force until 05 November 2020.